AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A vehicle stability compensation system which is arranged to adjust dynamically the self-centering position and the steering feel of an electrically assisted steering system during split mu braking operation, the stability compensation system comprising:

means for establishing at least one operational variable representing a corrective steer angle for the vehicle and hence representing a target self-centering position;

a driver feedback controller that is adapted to be connected to a vehicle steering system and that takes the at least one operational variable representative of the target self-centering position and subtracts therefrom an actual vehicle steering angle to derive a target self-centering error; and

gain means for establishing a torque demand proportional to said self-centering error, the torque demand being added to an assistance torque generated by the electrically assisted steering system to shift the self-centering position so as to encourage the vehicle driver to move the steering wheel such as to reduce the target self-centering error to zero for maintaining the vehicle stable and controllable.

2. (Previously Presented) A vehicle stability compensation system as claimed in claim 1, further including a means for establishing a braking yaw moment as said operational variable representative of a corrective steer angle.

3. (Previously Presented) A vehicle stability compensation system as claimed in claim 2, wherein said braking yaw moment is established by generating and subtracting from each other estimates of the brake pressures at the front left and front right wheels, multiplying the difference by a constant to give the difference in brake forces for the front wheels, and dividing the result by the track width of the vehicle.

4. (Previously Presented) A vehicle stability compensation system as claimed in claim 3, wherein said braking yaw moment is multiplied by a gain to give the corrective steer angle.

5. (Previously Presented) A vehicle stability compensation system as claimed in claim 1, further including a means for establishing a yaw oscillation moment as said operational variable representative of a corrective steer angle.

6. (Previously Presented) A vehicle stability compensation system as claimed in claim 5, wherein said yaw oscillation moment is established by that invert a yaw rate signal and then multiply the inverted yaw rate signal by a gain, the result being used as a feedback signal providing yaw oscillation correction.

7. (Previously Presented) A vehicle stability compensation system as claimed in claim 1, further including means for establishing a lateral drift correction as said operational variable representative of a corrective steer angle.

8. (Previously Presented) A vehicle stability compensation system as claimed in claim 7, wherein said lateral drift correction is established by inverting a vehicle lateral acceleration signal of an inverter and applying proportional plus integral compensation at a P-I compensator to provide the lateral drift correction.

9. (Previously Presented) A vehicle stability compensation system as claimed in claim 15, wherein said torque demand proportional to the target self-centering error is added to the assistance torque generated by the electrically assisted steering system by way of a limiter.

10. (Cancelled)

11. (Previously Presented) A vehicle stability compensation system as claimed in claim 10, further including means enabling steering velocity feedback to be applied to prevent the shift resulting in under-damped steering oscillations.

12. (Previously Presented) A vehicle stability compensation system as claimed in claim 11, wherein the steering velocity feedback is provided by the means is arranged to be phased out at lower speeds to avoid impeding low speed driver maneuvers.

13. (Previously Presented) A vehicle stability compensation system as claimed in claim 1, further including a means for establishing a yaw oscillation correction with an operational variable representative of a corrective steering velocity.

14. (Previously Presented) A vehicle stability compensation system as claimed in claim 13, wherein said operational variable of corrective steering velocity is compared to the actual steering velocity and the difference is added to the EAS assistance torque.

15. (Previously Presented) A vehicle stability compensation system as claimed in claim 1 wherein said operational variable representative of a corrective steer angle is a vehicle yaw rate and further wherein a vehicle model is used to generate an estimate of yaw rate from vehicle speed and steer angle.

16. (Original) A vehicle stability compensation system as claimed in claim 15, wherein said estimated yaw rate is subtracted from the actual vehicle yaw rate to give a yaw rate error.

17. (Previously Presented) A vehicle stability compensation system as claimed in claim 16 wherein said yaw rate error is passed through a compensator in order to estimate a yaw moment causing the yaw rate error.

18. (Previously Presented) A vehicle stability compensation system as claimed in claim 17 wherein the estimated yaw moment is used to modify the yaw behavior of said vehicle model.

19. (Previously Presented) A vehicle stability compensation system as claimed in

claim 2, wherein the braking yaw moment is generated by a vehicle model and a compensator, said vehicle model being responsive to the vehicle speed and steer angle to generate an estimated vehicle yaw rate, said yaw estimated vehicle yaw rate being subtracted from the actual vehicle yaw rate to obtain a yaw rate error which is then passed through said compensator to generate said braking yaw moment.

20. (Previously Presented) A vehicle stability compensation system as claimed in claim 15, further including a means for deriving a driver compliance rating corresponding to a driver's resistance to accept additional steering demands provided by the system.

21. (Previously Presented) A vehicle stability compensation system as claimed in claim 20, wherein said means for deriving said driver compliance rating includes using a lookup map based on operational variable steering column torque.

22. (Previously Presented) A vehicle stability compensation system as claimed in claim 20, wherein said means for deriving said driver compliance rating includes using a lookup map based on operational variable rate of change of driver steering torque.

23. (Previously Presented) A vehicle stability compensation system as claimed in claim 21, wherein said driver compliance rating is established based on a multiplication of the steering column torque by a rate of change of driver steering torque.

24. (Previously Presented) A vehicle stability compensation system as claimed in claim 2, wherein a steer angle error is established by subtracting said corrective steer angle from actual steer angle.

25. (Previously Presented) A vehicle stability compensation system as claimed in claim 20, wherein said means for deriving said driver compliance rating includes using a lookup map based on an operational variable steer angle error.

26. (Previously Presented) A vehicle stability compensation system as claimed in claim 25, wherein a combination of driver compliance ratings is established based on said steer angle error and a product of steering column torque and a rate of change of driver steering torque.

27. (Previously Presented) A vehicle stability compensation system as claimed in claim 20, wherein said driver compliance rating is used to scale the EAS assistance torque for the purposes of preventing excessive torque application.

28. (Previously Presented) A vehicle stability compensation system as claimed in claim 15, including means for establishing a value representative of vehicle stability.

29. (Original) A vehicle stability compensation system as claimed in claim 28, wherein said vehicle stability value is established using a lookup map based on operational variable actual yaw rate.

30. (Original) A vehicle stability compensation system as claimed in claim 28, wherein said vehicle stability value is established using a lookup map based on operational variable yaw acceleration.

31. (Previously Presented) A vehicle stability compensation system as claimed in claim 29, wherein a combination of vehicle stability rating is established by multiplying said actual yaw rate by yaw acceleration.

32. (Original) A vehicle stability compensation system as claimed in claim 28, wherein said vehicle stability value is established using a lookup table based on operational variable steer angle.

33. (Previously Presented) A vehicle stability compensation system as claimed in claim 31, wherein a combination of vehicle stability ratings is established by multiplying

together said vehicle stability rating and a vehicle value established using a lookup table based on operational variable steer angle.

34. (Previously Presented) A vehicle stability system as claimed in claim 33 wherein said vehicle stability rating combined with a driver compliance rating corresponding to a driver's resistance to accept additional steering demands provided by the system by multiplication.

35. (Currently Amended) A vehicle stability compensation system as claimed in claim [[1]] 15 having means for variation of an ABS initial sympathetic pressure dump, the dump valve open time being based upon at least one of a driver compliance rating corresponding to a driver's resistance to accept additional steering demands provided by the system and a vehicle stability rating obtained from one of multiplying actual yaw rate by yaw acceleration and a lookup table.

36. (Currently Amended) A vehicle stability compensation system as claimed in claim [[1]] 15 having means for variation of ABS front high mu pressure ramp, the apply valve open time being based upon at least one of a driver compliance rating corresponding to a driver's resistance to accept additional steering demands provided by the system and a vehicle stability rating obtained from one of multiplying actual yaw rate by yaw acceleration and a lookup table.

37. (Previously Presented) A vehicle stability system as claimed in claim 15, having means for generating an estimated vertical load split from vehicle deceleration and vehicle parameters.

38. (Previously Presented) A vehicle stability compensation system as claimed in claim 37, including means for generating rear pressure demand by multiplying a measured front high mu brake pressure by said estimated vertical load ratio.

39. (Previously Presented) A vehicle stability compensation system as claimed in claim 38, wherein a rear pressure demand is scaled by multiplication by driver's compliance rating corresponding to a driver's resistance to accept additional steering demands provided by the system.

40. (Previously Presented) A vehicle stability compensation system as claimed in claim 39 in which said rear pressure demand is passed through a filter to remove high pressure frequency components and rapid changes from demand pressure signal.

41. (Previously Presented) A vehicle stability compensation system as claimed in claim 40 including means for activation of said filter by an enabling split mu flag from a vehicle ABS whereby the initial value of said filter is set to the instantaneous value of a measured rear high mu brake pressure for removing any lag introduced by activation of said filter at a value of zero.

42. (Previously Presented) A vehicle stability compensation system as claimed in claim 41, further including means for modification of the ABS to control the high mu rear pressure to demand pressure.

43. (Previously Presented) A vehicle stability compensation system as claimed in claim 30, wherein a combination of vehicle stability rating is established by multiplying said yaw acceleration by an actual yaw rate.